

UNITED STATES DEPARTMENT OF AGRICULTURE  
ANIMAL AND PLANT HEALTH INSPECTION SERVICE1. REGISTRATION NO.  
34-R-0001CUSTOMER NO.  
109FORM APPROVED  
OMB NO. 0579-0036**ANNUAL REPORT OF RESEARCH FACILITY**  
(TYPE OR PRINT)2. HEADQUARTERS RESEARCH FACILITY (Name and Address, as registered with USDA,  
include Zip Code)UNIVERSITY OF MICHIGAN  
1301 CATHERINE STREET  
ANN ARBOR, MI 48109  
(734) 763-8028

JAN 9 4 2008

3. REPORTING FACILITY (List all locations where animals were housed or used in actual research, testing, teaching, or experimentation, or held for these purposes. Attach additional sheets if necessary.)

## FACILITY LOCATIONS/sites)

See Attached Listing

## REPORT OF ANIMALS USED BY OR UNDER CONTROL OF RESEARCH FACILITY (Attach additional sheets if necessary or use APHIS FORM 7023A)

A. Animals Covered By The Animal Welfare Regulations	B. Number of animals being bred, conditioned, or held for use in teaching, testing, experiments, research, or surgery but not yet used for such purposes.	C. Number of animals upon which teaching, research, experiments, or tests were conducted involving no pain, distress, or use of pain- relieving drugs.	D. Number of animals upon which experiments, teaching, research, surgery, or tests were conducted involving accompanying pain or distress to the animals and for which appropriate anesthetic, analgesic, or tranquilizing drugs were used.	E. Number of animals upon which teaching, experiments, research, surgery or tests were conducted involving accompanying pain or distress to the animals and for which the use of appropriate anesthetic, analgesic, or tranquilizing drugs would have adversely affected the procedures, results, or interpretation of the teaching, research, experiments, surgery, or tests. (An explanation of the procedures producing pain or distress in these animals and the reasons such drugs were not used must be attached to this report)	F. TOTAL NO. OF ANIMALS  (Cols. C + D + E)
4. Dogs			181		181
5. Cats			32		32
6. Guinea Pigs		165	738	14	917
7. Hamsters					
8. Rabbits		176	414		590
9. Non-Human Primates		65	19	61	145
10. Sheep		88	241	24	353
11. Pigs			425		425
12. Other Farm Animals					
Cow			4		4
13. Other Animals					
Bat		3643			3643
Degu		365	319		684
Gerbil			114		114

## ASSURANCE STATEMENTS

- 1) Professionally acceptable standards governing the care, treatment, and use of animals, including appropriate use of anesthetic, analgesic, and tranquilizing drugs, prior to, during, and following actual research, teaching, testing, surgery, or experimentation were followed by this research facility.
- 2) Each principal investigator has considered alternatives to painful procedures.
- 3) This facility is adhering to the standards and regulations under the Act, and it has required that exceptions to the standards and regulations be specified and explained by the principal investigator and approved by the Institutional Animal Care and Use Committee (IACUC). A summary of all the exceptions is attached to this annual report. In addition to identifying the IACUC-approved exceptions, this summary includes a brief explanation of the exceptions, as well as the species and number of animals affected.
- 4) The attending veterinarian for this research facility has appropriate authority to ensure the provision of adequate veterinary care and to oversee the adequacy of other aspects of animal care and use.

CERTIFICATION BY HEADQUARTERS RESEARCH FACILITY OFFICIAL  
(Chief Executive Officer or Legally Responsible Institutional official)

I certify that the above is true, correct, and complete (7 U.S.C. Section 2143)

SI	AL	NAME & TITLE OF C.E.O. OR INSTITUTIONAL OFFICIAL (Type or Print)	DATE SIGNED
(b)(6), (6)(7)(C)		(b)(6), (6)(7)(C)	1/18/08

APHIS FORM 7023  
(AUG 91)

(Replaces VS FORM 16-23 (Oct 88), wh

PART 1 - HEADQUARTERS

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UNITED STATES DEPARTMENT OF AGRICULTURE  
ANIMAL AND PLANT HEALTH INSPECTION SERVICE

1. REGISTRATION NO.  
34-R-0001

CUSTOMER NO.  
109

FORM APPROVED  
OMB NO. 0579-0036

**CONTINUATION SHEET FOR ANNUAL REPORT  
OF RESEARCH FACILITY**  
(TYPE OR PRINT)

2. HEADQUARTERS RESEARCH FACILITY (Name and Address, as registered with USDA, include Zip Code)

UNIVERSITY OF MICHIGAN  
1301 CATHERINE STREET  
ANN ARBOR, MI 48109  
(734) 763-8028

REPORT OF ANIMALS USED BY OR UNDER CONTROL OF RESEARCH FACILITY (Attach additional sheets if necessary or use this form.)

[illegible]

## ASSURANCE STATEMENTS

- 1) Professionally acceptable standards governing the care, treatment, and use of animals, including appropriate use of anesthetic, analgesic, and tranquilizing drugs, prior to, during, and following actual research, teaching, testing, surgery, or experimentation were followed by this research facility.
- 2) Each principal investigator has considered alternatives to painful procedures.
- 3) This facility is adhering to the standards and regulations under the Act, and it has required that exceptions to the standards and regulations be specified and explained by the principal investigator and approved by the Institutional Animal Care and Use Committee (IACUC). **A summary of all the exceptions is attached to this annual report.** In addition to identifying the IACUC-approved exceptions, this summary includes a brief explanation of the exceptions, as well as the species and number of animals affected.
- 4) The attending veterinarian for this research facility has appropriate authority to ensure the provision of adequate veterinary care and to oversee the adequacy of other aspects of animal care and use.

CERTIFICATION BY HEADQUARTERS RESEARCH FACILITY OFFICIAL

(Chief Executive Officer or Legally Responsible Institutional official)

I certify that the above is true, correct, and complete (7 U.S.C. Section 2143)

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**OFFICIAL**

NAME &amp; TITLE OF C.E.O. OR INSTITUTIONAL OFFICIAL (Type or Print)

DATE SIGNED

(b)(6), (6)(7)(C)

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1/18/08

APR 10 1991 10 25 AM  
(AUG 91)

(Replaces VS FORM 18-23 (Oct 88), which is obsolete

PART 1 - HEADQUARTERS

**Annual Report of Research Facility  
University of Michigan**

**List of Exceptions to the Regulations**

JAN 24 1988

1. Registration Number: 34-R-0001  
Customer Number: 109
  
2. University of Michigan  
1301 Catherine Street  
Ann Arbor, MI 48109  
(734) 763-8028

Species Name	Exception to Regulation	Rationale
Cat	House individually	Adult male intact cats are territorial and socially incompatible. Their behavior could cause damage to their surgical implants.
Cat	Constant light cycle	Animals are used in sleep studies. Constant light in housing room ensures animals will sleep when tested in the dark laboratory
Degu	House in same room with rats	Facility space limitations
Degu	Constant light cycle	Study psychological effects of constant light
Degu	Constant dark cycle	Study psychological effects of constant darkness
Gerbil	House in same room with rats	Facility space limitations, reduce transport stress on animals
Guinea pig	House in same room with mice and rats	Facility space limitations
Pig	House in same room with sheep	Facility space limitations
Sheep	Housed in 36" x 24" pen for up to 28 days	Animals must be prevented from turning around and damaging catheters/tubing
Sheep	House in same room with pigs	Facility space limitations

Column E Explanation

JAN 9 4 2008

1. Registration Number: **34-R-0001**
2. Number of animals used in this study: **6**
3. Species (common name) of animals used in this study: **Guinea pigs**
4. Explanation of procedure producing pain and/or distress:

**We study the effect of noise over-exposure on the auditory epithelium and on the hearing of mammals the animals. We use a noise exposure which needs to result in hair cell loss and to mimic conditions that affect people. The noise exposure we use is similar to conditions people experience. These conditions are prevalent in military situations and in several professions such as construction. Also, people elect to experience similar (or worse) conditions in some bars, discos and amplified music in concerts or via headphones, and often in cars. While people do not find these stressful, we prefer to err on the conservative side and consider these as stressful to the animals. Still, animals do not seem to be bothered by the exposure so perhaps the stress is minimal.**

5. Scientific justification why pain or distress could not be relieved. Methods or means used to determine that pain or distress relief would interfere with test results.

**We cannot use anesthetics because animals sleep on their side such that one ear is covered, depriving us from the ability to have a model with symmetrical lesions.**

1. Registration Number: **34-R-0001**
2. Number of animals used in this study: **8**
3. Species (common name) of animals used in this study: **Guinea pigs**
4. Explanation of procedure producing pain and/or distress:

**Animals must be restrained for approximately 1-2 hours in order to perform functional tests of their vestibular systems. The restraint is minimal; the animals are contained in a plastic box with an absorbent pad. The box is well ventilated, open at the back except for a band of velcro that prevents the animal from backing out, and open at the front. In particular, for most experiments, the animal's head is free to move. For some control experiments, we may painlessly restrain the animal's head movement for less than one hour.**

5. Scientific justification why pain or distress could not be relieved. Methods or means used to determine that pain or distress relief would interfere with test results.

**The restraint is essential for vestibular tests and measurements of eye movement as described in the protocol. The animal must be held on a vestibular turntable so that we can apply controlled angular and linear motions to the animal. In addition, eye movement recording requires that the animal's eyes be centered within the measurement apparatus. There is no other practical way to obtain these data. The tests are similar to those performed in human patients to diagnose vestibular disorders.**

1. Registration Number: **34-R-0001**
2. Number of animals used in this study: **2**
3. Species (common name) of animals used in this study: **Sheep**

4. Explanation of procedure producing pain and/or distress:

**The sheep are in column E due to the prolonged restraint. They are housed in a stanchion for up to 30 days. The animals do not appear to display any signs of discomfort and pain.**

5. Scientific justification why pain or distress could not be relieved. Methods or means used to determine that pain or distress relief would interfere with test results.

**The sheep appear content over the course of the therapy session. The scientific justification of the need for the restraint is that the sheep would most likely pull at the catheters that have been placed for therapy delivery and could potentially cause them to come out. This could cause much more pain and discomfort to the sheep due to potential infection at the insertion site.**

Column E Explanation

1. Registration Number: **34-R-0001**
2. Number of animals used in this study: **19**
3. Species (common name) of animals used in this study: **Sheep**

4. Explanation of procedure producing pain and/or distress:

**We plan to study the effects of psychological stress on the estrous cycle of female sheep that are undernourished. The food reduction will be targeted to produce a gradual loss of body weight. Food restriction will initially be a 20% reduction for the first month followed by further decrease by 10-15% if necessary to achieve target body weight of 75-80% of the starting body weight over the course of 3-4 months. This targeted weight will be maintained for an additional 2 months while the experiments are being performed.**

5. Scientific justification why pain or distress could not be relieved. Methods or means used to determine that pain or distress relief would interfere with test results.

**The animals that are placed in column E are being used to test the hypothesis that psychosocial stress disrupts the estrous cycle of sheep that are nutritionally compromised. During the year, we have been prepared the animals by reducing their food intake, but we did not yet bring the psychosocial stress. The distress of food reduction is essential for the goal of this experiment.**

Column E Explanation

JAN 24 2008

1. Registration Number: **34-R-0001**
2. Number of animals used in this study: **3**
3. Species (common name) of animals used in this study: **Sheep**

4. Explanation of procedure producing pain and/or distress:

**The sheep are in column E due to the prolonged restraint. They are housed in a stanchion for up to 30 days. The animals do not appear to display any signs of discomfort and pain.**

5. Scientific justification why pain or distress could not be relieved. Methods or means used to determine that pain or distress relief would interfere with test results.

**The sheep appear content over the course of the therapy session. The scientific justification of the need for the restraint is that the sheep would most likely pull at the catheters that have been placed for therapy delivery and could potentially cause them to come out. This could cause much more pain and discomfort to the sheep due to potential infection at the insertion site.**



Column E Explanation

JAN 24 2008

1. Registration Number: **34-R-0001**
2. Number of animals used in this study: **41**
3. Species (common name) of animals used in this study: **Non-human Primate**
4. Explanation of procedure producing pain and/or distress:

**Non-human primates in column E have been placed such due to their use in an antinociception assay. The main aim of this study is to test compounds (i.e. analgesics) and their ability to produce analgesia. The procedure involves exposure of the primates's tail to water of temperature ranging from 40-55 C for a period of not more then 20 seconds. A localized compound is administered to the tail. The measure of antinociception is the latency for animals to withdraw their tails from warm water. Either the animal or the experimenter will remove the tail at/ or before the 20 second mark.**

5. Scientific justification why pain or distress could not be relieved. Methods or means used to determine that pain or distress relief would interfere with test results.

**If standard analgesic drugs were administered, the ability of the lab to interpret data from test compounds would be impossible.**

1. Registration Number: **34-R-0001**
2. Number of animals used in this study: **20**
3. Species (common name) of animals used in this study: **Non-human Primate**
4. Explanation of procedure producing pain and/or distress:

Stress is induced in non-human primates by either the administration of anxiogenic compounds or physical restraint. The anxiogenic compounds are Yohimbine, CRH (corticotropin-releasing-hormone), BCCE (beta carboline carboxylic acid ethyl ester), and mCPP (meta chlorophenylpiperazine). The method of inducing stress by physical restraint involves either the placing of the subjects in a primate capture net or pulling the rear wall of their home cage forward so as to confine them to a small space in which they cannot move freely. The subjects are not restrained for more than one 30 minute period once per week. Neither are the pharmacological stressors administered more than once per week. During the periods of stress-induction, the subjects are monitored by the experimenter to ensure their physical well-being.

5. Scientific justification why pain or distress could not be relieved. Methods or means used to determine that pain or distress relief would interfere with test results.

The scientific objectives of these studies are to quantify individual differences among animals in their reaction to both pharmacological and physical stressors; to examine the relationship between stress reactivity and an individual subject's motivation to self-administer drugs of abuse; and to determine the extent to which any such differences in an animal's motivation to self-administer drugs of abuse are modulated by stress. Stress is therefore not relieved because it is the independent variable of the experiments, without which they could not be conducted.